



Safe discharge of some patients who have taken an overdose of opioids may be possible after one hour

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Three Part Question

In [patients given naloxone for the treatment of opioid overdose] is [a lack of recurrence of symptoms after one hour] a sensitive predictor for [the patient being able to be safely discharged from the department]?

Clinical Scenario

A 30 year old opioid addict is brought to the emergency department having overdosed on heroin. He is successfully treated with a titrated bolus of naloxone. You wonder when it will be safe to discharge the patient.

Search Strategy

Medline 1966-02/02 using the OVID interface.

[{exp narcotics OR opioid.mp OR opiate.mp OR morphine.mp OR buprenorphine.mp OR codeine.mp OR dextromoramide.mp OR diphenoxylate.mp OR dipipanone.mp OR dextropropoxyphene.mp OR diamorphine.mp OR heroin.mp OR alfentanil.mp OR fentanyl.mp OR remifentanil.mp OR meptazinol.mp OR methadone.mp OR nalbuphine.mp OR oxycodone.mp OR pentazocine.mp OR pethidine.mp OR phenazocine.mp OR tramadol.mp} AND {exp overdose OR overdos\$.mp OR exp poisons OR poison\$.mp OR "acute intoxic\$.mp OR "acute toxic\$.mp} AND {exp patient admission OR admission.mp OR exp patient discharge OR discharge.mp OR observ\$.mp OR monitor\$.mp OR predict\$.mp}] LIMIT to human AND English.

Search Outcome

194 papers were found of which only 5 were relevant to the setting.

Relevant Paper(s)

| Author, date and country | Patient group | Study type (level of evidence) | Outcomes | Key results | Study Weaknesses |
|--------------------------|-------------------------------|--------------------------------|------------------|-------------|--|
| Smith DA et al, | 124 patients presenting to an | Observational | Time to decision | 20 mins | Treatments given were neither standardised nor randomised so |



| Author, date and country | Patient group | Study type (level of evidence) | Outcomes | Key results | Study Weaknesses |
|-----------------------------------|--|--------------------------------|--|--|---|
| 1992, USA | ED with a heroin overdose | | Further treatment after discharge | None | analysis of outcome could not be performed in relation to mode of treatment Follow-up was poor so it is possible that patients who sought further treatment or who died elsewhere would have been missed |
| Osterwalder JJ, 1995, Switzerland | 192 patients attending an ED with clinical suspicion of opioid od | Observational | Time to decision Reattendance if discharged | 15 mins 1 patient died | No attempt was made to compare the outcomes of different treatment modes The period of observation in the ED was not recorded |
| Watson WA et al, 1998, USA | 84 patients attending an ED who had been given naloxone for a presumed opioid od | Observational | Subsequent recurrence of opioid toxicity | Patients who have taken a longacting opioid are more likely to experience a recurrence of toxicity | No follow-up of patients was attempted after admission to hospital/discharge from the ED to assess the incidence of late complications The period of observation in the ED was not recorded |
| Vilke GM et al, 1999, USA | 317 patients with a clinical suspicion of opioid od who refused to be transported to the ED after being given naloxone by the paramedics | Observational | Reattendance of the ambulance within 12 hours Death | Nil No patients treated with naloxone died | Variable doses and routes of administration of naloxone were used No follow-up of patients was attempted to ascertain if they received subsequent treatment or died in another area or attended the ED by other means of transport |
| Christenson J et al, 2000, Canada | 573 patients attending an ED with clinical evidence of opioid intoxication who had been given naloxone either in the prehospital setting or ED | Observational | Clinical prediction rule to predict safe discharge | Patients can be safely discharged one hour after administration of naloxone if they have normal mobility, SpO2 >92%, respiratory rate 10-20/min, heart rate 50-100/min, temperature 35-37.5 C, GCS 15/15 | The rule has not been validated yet The pattern of drug abuse in Vancouver is different from other cities, so there are concerns about whether these results can be applied to different populations (eg those that misuse a higher proportion of longer acting agents) |

Comment(s)

The evidence consists of observational studies, three of which are retrospective reviews of medical records and thus there are concerns regarding the reliability of the data collected. In addition, only Christenson's study attempts to apply a "rule-out" strategy by attempting to identify the clinical variables that predict a low risk of delayed complications from the opioid overdose. Further work is required to validate the rule in different populations by further prospective studies. Also, comparative trials need to be undertaken to assess the validity of the rule for different opioid overdoses.

Clinical Bottom Line

The evidence suggests that if a patient remains well one hour after administration of naloxone, then it is safe to discharge them.

Level of Evidence

Level 3 - Small numbers of small studies or great heterogeneity or very different population.

References

1. Smith DA, Leake L, Loflin JR et al. Is admission after intravenous heroin overdose necessary? *Ann Emerg Med* 1992;21(11);1326-30.
2. Osterwalder JJ. Patients intoxicated with heroin or heroin mixtures: how long should they be monitored? *Eur J Emerg Med* 1995;2(2);97-101.
3. Watson WA, Steele MT, Muelleman RL, et al. Opioid toxicity recurrence after an initial response to naloxone. *J Toxicol Clin Toxicol* 1998;36(1-2);11-17.
4. Vilke GM, Buchanan J, Dunford JV et al. Are heroin overdose deaths related to patient release after prehospital treatment with naloxone? *Prehospital Emerg Care* 1999;3(3);183-6.
5. Christenson J, Etherington J, Grafstein E, et al. Early discharge of patients with presumed opioid overdose: development of a clinical prediction rule. *Acad Emerg Med* 2000;7(10);1110-18.